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RESEARCH INTERESTS

High Performance Scientific Computing:

• *Iterative methods in numerical linear algebra:* eigenvalue methods and preconditioning, restarting techniques, sequences of linear systems, Jacobi-Davidson methods, SVD methods

• *High Performance Computing and Software:* scalable implementations of scientific codes, resource balancing in heterogeneous/shared environments, numerical libraries

• *Computational sciences and applications:* electronic structure applications, materials science, Lattice QCD, machine learning and data mining

EDUCATION

Ph.D.	Computer Science Department, Vanderbilt University, Nashville, TN
May 1995	Dissertation Title: *Preconditioned Iterative Methods for the Large, Sparse, Symmetric, Eigenvalue Problem on Multicomputers*
M.Sc.	Computer Science Department, Vanderbilt University, Nashville, TN
Dec. 1991	Thesis Title: *Scientific and Statistical Multidatabases*
B.Sc.	Department of Mathematics, University of Athens, Athens, Greece
July 1989	Emphasis: Numerical Analysis, Probability, and Statistics

EXPERIENCE

2020	*Visiting Scientist*, Deakin University, Computer Science, Melbourne, Australia
2010–11	*Visiting Scientist*, IBM Research, Zurich Lab, Switzerland
2008–	*Professor* Computer Science Department, William & Mary, Williamsburg, VA
2002–08	*Associate Professor* Computer Science Department, William & Mary, Williamsburg, VA
1997–02	*Assistant Professor* Computer Science Department, William & Mary, Williamsburg, VA
1995–97	*NSF Postdoctoral Research Associate* Computer Science Department, University of Minnesota, Minneapolis, MN Eigenvalue preconditioning and restarting. Materials science applications. Mentor: Yousef Saad
1993	*Summer Visiting Researcher* Army High Performance Computing Research Center, Minneapolis, MN
1990–94	*Research Assistant / Teaching Assistant* Computer Science Department, Vanderbilt University, Advisor: Dr. C. F. Fischer

AWARDS

2019	Plumeri Award for Faculty Excellence, William & Mary
2018	Winner of Student Paper Competition with student S. Goldenberg Copper Mountain Conference on Iterative methods
2013	Plumeri Award for Faculty Excellence, William & Mary
2011	SIAM recognition for significant referee work on manuscripts submitted to its journals
2006	One of five finalists for best paper, HPDC'06
1995–97	NSF CISE Postdoctoral Research Associateship
1994	Dissertation Enhancement Award, Vanderbilt University

Distinguished service to the profession

2022-23	Guest Editor, CMCIM special issue in SIAM J. Sci. Comput.
2021	Co-Chair, SIAM Conference on Applied Linear Algebra '21 (600 participants)
2017–2022	Section Editor, SIAM J. Scientific Computing (Software & HPC), in 2nd term
2013–	Associate Editor, SIAM J. Scientific Computing
2018	Chair of student paper competition, Copper Mountain Conf. Iter. Meth.
2012	Guest editor for PMAA12 special issue on the Intern. J. Computer Mathematics

Other service to the profession

2020–	Center for Nuclear Femtography, Advisory Committee
2019-20	Steering Committee Member, Center for Nuclear Femtography, Jefferson Lab A center to foster collaborations between computational scientists in Virginia to process and understand data from Jefferson Lab's Continuous Electron Beam Accelerator Facility.
2016–	Program committee, Copper Mountain Conference on Iterative Methods
2018–19	Program Committee, Symposium on Imaging and Visualization in Science
2014	Technical program committee member IPDPS'14
2013	Technical program committee member Supercomputing'13
2011	Editorial board of the ISRN Applied Mathematics Journal
2010	Steering committee member for High-Performance Computing Symposium 2011
2007–10	Scientific committee for Conference in Numerical Analysis (NumAn)
2008	Workshop co-organizer "Building Bridges between Computational Mathematics and Electronic Structure", UIUC, June 16–17, 2008
2006	Steering committee member for High-Performance Computing Symposium 2007
2001	Program committee for International Conference on Supercomputing (ICS)

GRANTS

2022-27	DOE SciDAC-5 (DE-FOA-0002589) $807,000, SP at W&M. Responsible 50% "Fundamental nuclear physics at the exascale and beyond"
2020-23	DOE Exascale Computing Project (17-SC-20-SC), $545,977, PI at W&M Phase 2 of the ECP project. "Exascale Lattice Gauge Theory Opportunities and Requirements for Nuclear and High Energy Physics"
2022-23	NSF III (IIS 2008557), $395,403, assumed PI responsibilities in 2022 "Combinatorial Algorithms for High-dimensional Learning"
2019	SURA, C2019-FEMT-002-05, $22,300, Co-PI Parton Distribution Functions from Lattice QCD, PI: K. Orginos
2018-21	NSF OAC (NSCI 1835821), $600,000, PI "A high performance suite of SVD related solvers for machine learning"

Responsible: 50%, Co-PI: Zhenming Liu

2016-20 DOE Exascale Computing Project (17-SC-20-SC), $665,000, PI at W&M
Part of a multi-institutional grant of $10M, "Exascale Lattice Gauge Theory Opportunities and Requirements for Nuclear and High Energy Physics"

2018 NSF ACI (SI2-SSE 1440700-REU), $4,000, PI

2014-17 NSF ACI (SI2-SSE 1440700), $447,000, PI
"Enhancing the PRIMME software with new methods and functionality for eigenvalue and SVD problems"

2013–16 Academic advisor for Jesse Laeuchli's National Physical Science Consortium (NPSC) Graduate Fellowship $20,000 per year

2012-15 NSF Theoretical Foundations (CCF 1218349), $400,000, PI
"Algorithms for computing aggregate functions of matrices with applications to Lattice QCD"
Responsible: 85%, Co-PI: Prof. Orginos

2012-17 DOE SciDAC (DE-FC02-12ER41890), $199,000, PI
"Computing Properties of Hadrons, Nuclei and Nuclear Matter from QCD",
Responsible: 100%, Co-PI: Prof. Orginos

2007-10 NSF Theoretical Foundations (CCF 0728915), $200,000, PI
"Numerical Linear Algebra Problems and Quantum Chromodynamics"
Responsible: 75%, Co-PI: Prof. Orginos

2008-10 DOE Jefferson Lab matching grant to NSF CCF 0728915, $69,716,
Supplementary support for a postdoctoral associate

2007-10 NSF Computer Systems Research (CNS 0720699), $200,000, Co-PI
"Autocorrelated Flows in Systems: Analytic Models and Applications"
Responsible: 25%, PI: Prof. Smirni

2007-12 NSF CSUMS (DMS 0703532), $848,882, Co-PI
Computational Science Training for Undergraduates in the Mathematical Sciences
"Theory, techniques, and research in computational mathematics"
Responsible: 6%, with Profs. Li, Day, Lewis, Lutzer, Phillips, Shi, Smith and Torczon

2003–08 NSF Information Technology Research (ITR/DMR 0325218), $4M, SP
"Institute for the Theory of Advanced Materials in Information Technology"
Responsible: $37,669, PI: J. R. Chelikowsky with 11 SPs

2001–04 NSF Information Technology Research (ITR/AP-0112727), $269,364, PI
"High performance iterative methods on parallel computers and distributed, shared environments"

2001–02 NSF Experimental and Integrative Activities (EIA-9712718), $157,880, PI
"Undergraduate Modeling and Simulation Research Seminar"
Responsible 40%, Co-PIs: Profs. L. Leemis and S. Zhang

2000–04 DOE Computational Science fellowship, academic advisor for R. Mills, $82,613

2000–03 NSF Information Technology Research (ITR/ACS-0082094), $ 441,981, Co-PI
"New algorithms for scalable modeling in materials science"
Responsible: 32%, with Profs. Saad and Chelikowsky

2000–02 Virginia Space Grant Consortium, graduate research fellowship for J. McCombs

1999–02 NSF Major Research Instrumentation (EIA-9977030), $461,820, Co-PI
"Acquisition of High Performance Clusters for Effective Parallel Computing in Computational Science Research and Education"
Responsible: 15%, Co-PIs: Profs. Krakauer, Smirni, Torczon, Voigt, S. Zhang, X. Zhang

1999 William & Mary, May research seminar grant

with Math Profs. Rodman, Spitkovsky, Woerdeman

1998–99 NATO collaborative research grant, $5000, PI, Co-PI: Prof. Ynnerman
"Parallel Implementation of Particle-In-Cell Simulations of Astrophysical Plasmas"

1998–99 Summer research award $5000/year, William & Mary

1998 Teaching and curriculum development grant, William & Mary

1993 Travel Grant from AHPCRC and University of Minnesota

1991–95 Teaching and research assistant, Vanderbilt University

RESEARCH PRODUCTS

SOFTWARE

PRIMME: Preconditioned Iterative MultiMethod Eigensolver

2002– One of the foremost state-of-the-art eigenvalue and singular value packages.
Co-developed with ex Ph.D. students James R. McCombs and Lingfei Wu,
and since 2015 with Dr. Eloy A. Romero.
GitHub: `https://github.com/primme/primme`
Pypi: `https://pypi.org/project/primme/`
CRAN R: `https://cran.r-project.org/package=PRIMME`

Apr 2022	Broad Release Version 3.3.
Jan 2021	Broad Release Version 3.2.
May 2020	Broad Release Version 3.1.1.
Dec 2019	Broad Release Version 3.0. Generalized Eigenvalue Problems, GPUs.
Oct 2018	Broad Release Version 2.2.
Jun 2017	Python, R, MATLAB/Octave, Julia, NIM interfaces.
Apr 2017	Broad Release Version 2.1.
Oct 2016	Broad Release Version 2.0. Singular Value Problems. BSD-3 license.
Sep 2015	Broad Release Version 1.2.2. Project moved on GitHub.
Dec 2014	Broad Release Version 1.2. Various bug fixes.
Oct 2006	Broad Release Version 1.1. Includes dynamic method selection.
Apr 2006	Release Version 1.06. Extended functionality for Hermitian matrices.
Oct 2005	Release Version 1

Number of downloads from	GitHub	Pypi (Python)	CRAN (R)	Total
2019 - 2021	600	8913	16733	26246

Chroma: Improved functionality

2008– DOE's Chroma is one of the standard LQCD packages. Contributed codes for:

Frequency Splitting, 2022.
Co-developed with postdoc Dr. Whyte a multi-level Monte Carlo method for computing the trace of the inverse of LQCD operators.

Hierarchical Probing, 2012.
Developed and implemented a method for variance reduction for computing the trace of the inverse of LQCD operators on 4D lattices.

Incremental EigCG, 2008.
Developed and implemented a method that finds and deflates eigenvectors while solving linear systems with multiple right hand sides.

PARSEC

1995-97 Developed the first parallel version of PARSEC at U of Minnesota.
The code solves the Kohn-Sham equations.

DVDSON

1995 Developed a Davidson eigenvalue code, which has been used extensively in the atomic physics community, throughout the US and Europe. Also, used as kernel application for studying I/O performance at CMU and other research groups.

JOURNAL PUBLICATIONS

1. T. Whyte, A. Stathopoulos, E. Romero, K. Orginos, "Optimizing Shift Selection in Multilevel Monte Carlo for Disconnected Diagrams in Lattice QCD ", *Computer Physics Communications*, to appear, 2023, `https://doi.org/10.1016/j.cpc.2023.108928`. Also `arXiv:2212.04430[hep-lat]`https://doi.org/10.48550/arXiv.2212.04430.
2. Heather Switzer, Andreas Stathopoulos, Eloy Romero, Jesse Laeuchli, Kostas Orginos, "Probing for the Trace Estimation of a Permuted Matrix Inverse Corresponding to a Lattice Displacement", *SIAM Journal on Scientific Computing*, 44(4), 2022, pp. B1096-B1121, `https://doi.org/10.1137/21M1422495`.
3. J. Laeuchli and A. Stathopoulos, "Extending Hierarchical Probing for Computing the Trace of Matrix Inverses", *SIAM Journal on Scientific Computing* 42(3), 2020, pp. A1459–A1485. `https://doi.org/10.1137/18M1176427`.
4. E. Romero, A. Stathopoulos, and K. Orginos, "Multigrid Deflation for Lattice QCD", *Journal of Computational Physics*, Vol. 409, 15 May 2020, 109356. doi.org/10.1016/j.jcp.2020.109356
5. S. Goldenberg, A. Stathopoulos, E. Romero, "A Golub-Kahan Davidson Method for Accurately Computing a Few Singular Triplets of Large Sparse Matrices", *SIAM Journal on Scientific Computing*, 41(4) 2019, pp. A2172–A2192. `https://doi.org/10.1137/18M1222004`.
6. L. Wu, F. Xue, and A. Stathopoulos, "TRPL+K: Thick-Restart Preconditioned Lanczos+K Method for Large Symmetric Eigenvalue Problems", *SIAM Journal on Scientific Computing* 41(2) 2019, pp. A1013–A1040. `https://doi.org/10.1137/17M1157568`.
7. A. S. Gambhir, A. Stathopoulos, K. Orginos, "Deflation as a Method of Variance Reduction for Estimating the Trace of a Matrix Inverse", *SIAM Journal on Scientific Computing*, 39 (2), 2017, pp. A532–A558, `https://doi.org/10.1137/16M1066361`. Also, arXiv:1603.05988.
8. L. Wu, E. Romero, A. Stathopoulos, "PRIMME_SVDS: A High-Performance Preconditioned SVD Solver for Accurate Large-Scale Computations" *SIAM Journal on Scientific Computing* 39 (5), 2017, S248–S271. `https://doi.org/10.1137/16M1082214`.
9. L. Wu, A. Stathopoulos, J. Laeuchli, V. Kalantzis, E. Gallopoulos, "Estimating the Trace of the Matrix Inverse by Interpolating from the Diagonal of an Approximate Inverse", *Journal of Computational Physics*, 326, (2016), 828–844, DOI: 10.1016/j.jcp.2016.09.001
10. L. Wu, K. Wu, A. Sim, M. Churchill, J. Y. Choi, A. Stathopoulos, C.S. Chang and S. Klasky, "Towards Real-Time Detection and Tracking of Blob-Filaments in Fusion Plasma Big Data", *IEEE Transactions on Big Data*, Vol. 2, Iss. 3, (2016), 262–275, DOI 10.1109/TBDATA.2016.2599929.
11. L. Wu and A. Stathopoulos, "A Preconditioned Hybrid SVD Method for Computing Accurately Singular Triplets of Large Matrices", *SIAM Journal on Scientific Computing*, Vol. 37, No. 5, (2015), S365–S388. `https://doi.org/10.1137/140979381`.

12. A. Stathopoulos, J. Laeuchli, and K. Orginos, "Hierarchical Probing for Estimating the Trace of the Matrix Inverse on Toroidal Lattices", *SIAM Journal on Scientific Computing* Vol. 35, No. 5, (2013), S299–S322. https://doi.org/10.1137/120881452.

13. A. A-Rehim, A. Stathopoulos, and K. Orginos, "Extending the eigCG algorithm to nonsymmetric Lanczos for linear systems with multiple right-hand sides", *Numerical Linear Algebra with Applications*, (2013), doi: 10.1002/nla.1893.

14. A. Stathopoulos and J. R. McCombs, "PRIMME: PReconditioned Iterative MultiMethod Eigensolver: Methods and software description", *ACM Transactions on Mathematical Software*, Vol. 37, No. 2, (2010), 21:1–21:30. https://doi.org/10.1145/1731022.1731031.

15. A. Stathopoulos and K. Orginos, "Computing and deflating eigenvalues while solving multiple right hand side linear systems in Quantum Chromodynamics", *SIAM Journal on Scientific Computing*, Vol. 32, No. 1, (2010), 439–462. https://doi.org/10.1137/080725532.

16. A. Stathopoulos and J. R. McCombs, "Nearly optimal preconditioned methods for Hermitian eigenproblems under limited memory. Part II: Seeking many eigenvalues", *SIAM Journal on Scientific Computing*, Vol. 29, No. 5, (2007), 2162–2188. https://doi.org/10.1137/060661910.

17. A. Stathopoulos, "Nearly optimal preconditioned methods for Hermitian eigenproblems under limited memory. Part I: Seeking one eigenvalue", *SIAM Journal on Scientific Computing*, Vol. 29, No. 2, (2007), 481–514. https://doi.org/10.1137/050631574.

18. R. T. Mills, C. Yue, A. Stathopoulos and D. S. Nikolopoulos, "Runtime and Programming Support for Memory Adaptation in Scientific Applications via Local Disk and Remote Memory", *Journal of Grid Computing*, (2007), 10.1007/s10723-007-9075-7.

19. J. R. McCombs and A. Stathopoulos, "Iterative Validation of Eigensolvers: A Scheme for Improving the Reliability of Hermitian Eigenvalue Solvers", *SIAM Journal on Scientific Computing*, Vol. 28, No. 6, (2006), 2337–2358. https://doi.org/10.1137/050627617.

20. A. Stathopoulos, "Using the PRIMME eigensolver in materials science applications", *Physica Status Solidi B-Basic Research,* Vol. 243, No. 9, (2006), 1–11. https://doi.org/10.1002/pssb.200666813.

21. A. Stathopoulos, A. Riska, Z. Hua, E. Smirni, "Bridging ETAQA and Ramaswami's Formula for the Solution of M/G/1-type Processes", *Performance Evaluation*, Vol. 62, (1–4), October 2005, 331–348. https://doi.org/10.1016/j.peva.2005.07.003.

22. M. E. Dieckmann, B. Eliasson, A. Stathopoulos and A. Ynnerman, "Connecting Shock Velocities to Electron-Injection Mechanisms", *Physical Review Letters*, 92, (6), (2004), 65006-1–4. https://doi.org/10.1103/PhysRevLett.92.065006.

23. J. R. McCombs and A. Stathopoulos, "Parallel, multigrain iterative solvers for hiding network latencies on MPP's and networks of clusters", *Parallel Computing*, Vol. 29, Issue. 9, (2003), 1237–1259. https://doi.org/10.1016/S0167-8191(03)00101-7.

24. A. Stathopoulos, "A case for a biorthogonal Jacobi-Davidson method: restarting and correction equation", *SIAM Journal on Matrix Analysis and Applications*, Volume 24, Number 1, (2002), 238–259. https://doi.org/10.1137/S0895479800373371.

25. A. Stathopoulos and K. Wu, "A block orthogonalization procedure with constant synchronization requirements", *SIAM Journal on Scientific Computing*, Volume 23, Number 6, (2002), 2165–2182. https://doi.org/10.1137/S1064827500370883.

26. A. Stathopoulos and S.-H. Teng, "Recovering mesh geometry from a stiffness matrix", *Numerical Algorithms* Vol. 30, Nos. 3/4, (2002), 303–322. https://doi.org/10.1023/A:1020182605597.

27. A. Stathopoulos, S. Öğüt, Y. Saad, J.R. Chelikowsky, and H. Kim, "Parallel methods and tools for predicting material properties," *Computing in Science and Engineering* Vol. 2, No. 4, (2000), 19–32. (accepted in the former IEEE Computational Science & Engineering). DOI: 10.1109/5992.852388

28. J.R. Chelikowsky, Y. Saad, S. Öğüt, Igor Vasiliev and A. Stathopoulos, "Electronic Structure Methods for Predicting the Properties of Materials: Grids in Space", *Physica Status Solidi B-Basic Research,* Vol. 217, No. 1, (2000), 173–195, T. Frauenheim and M. Pederson (eds.), Publisher: Wiley-VCH, Germany. https://doi.org/10.1002/(SICI)1521-3951(200001)217:1<173::AID-PSSB173>3.0.CO;2-Z

29. A. Stathopoulos and Y. Saad, "Restarting techniques for the (Jacobi-)Davidson symmetric eigenvalue methods," special issue on Eigenvalue Methods, *Electronic Transactions on Numerical Analysis*, Vol. 7 (1998) 163–181.

30. K. Wu, Y. Saad and A. Stathopoulos, "Inexact Newton Preconditioning Techniques for Eigenvalue Problems," special issue on Eigenvalue Methods, *Electronic Transactions on Numerical Analysis*, Vol. 7 (1998) 202–214.

31. A. Stathopoulos, Y. Saad, and K. Wu, "Dynamic Thick Restarting of the Davidson, and the Implicitly Restarted Arnoldi Methods," *SIAM Journal on Scientific Computing* 19, 1, (1998) 227–45. https://doi.org/10.1137/S1064827596304162

32. Y. Saad, A. Stathopoulos, J. R. Chelikowsky, K. Wu and S. Ogut, "Solution of Large Eigenvalue Problems in Electronic Structure Calculations," *BIT*, 36:3 (1996) 563–578.

33. A. Stathopoulos, A. Ynnerman, and C. F. Fischer, "A PVM Implementation of the MCHF Atomic Structure Package," *International Journal of Supercomputer Applications and High Performance Computing,* Vol. 10, No. 1, (1996) 41–61.

34. A. Stathopoulos, Y. Saad, and C. F. Fischer, "Robust Preconditioning of Large, Sparse, Symmetric Eigenvalue Problems," *the Journal of Computational and Applied Mathematics,* 64 (1995) 197–215.

35. A. Stathopoulos and C. F. Fischer, "A Davidson Program for Finding a Few Selected Extreme Eigenpairs of a Large, Sparse, Real, Symmetric Matrix," *Computer Physics Communications* 79 (1994) 268–290.

REFEREED CONFERENCE PUBLICATIONS

36. Yu Chen, Lucca Skon, James R. McCombs, Zhenming Liu, and Andreas Stathopoulos. "Parallel Software for Million-scale Exact Kernel Regression." In 2023 International Conference on Supercomputing (ICS '23), June 21-23, 2023, Orlando, FL, USA. ACM, New York, NY, USA, 11 pages. https://doi.org/10.1145/3577193.3593737

37. S. Goldenberg, E. Romero, A. Stathopoulos, "A Golub-Kahan Davidson Method for Accurately Computing a Few Singular Triplets of Large Sparse Matrices", 15th Copper Mountain Conference on Iterative Methods, 2018, Winner of Student Paper Competition. A longer version submitted to SISC.

38. Lingfei Wu, Kesheng Wu, Alex Sim, Michael Churchill, Jong Y. Choi, Andreas Stathopoulos, CS Chang, and Scott Klasky, "High-Performance Outlier Detection Algorithm for Finding Blob-Filaments in Plasma", Big Data Analytics: Challenges and Opportunities (BDAC-14). In Cooperation with ACM/IEEE SC14.

39. Q. Zhang, A. Heindl, E. Smirni, and A. Stathopoulos, "Comparison of two output models for the BMAP/MAP/1 departure process", in Proc. of the 6th International Conference on Quantitative Evaluation of SysTems (QEST'09), Budapest, Hungary, 2009. Acc. rate: 44%.

40. C. Yue, R. T. Mills, A. Stathopoulos and D. S. Nikolopoulos, "Runtime support for memory adaptation in scientific applications via local disk and remote memory", in the Proceedings of the 15th IEEE International Symposium on High Performance Distributed Computing (HPDC '06), Paris, France, 2006. Acc. rate: 15%. (One of five finalists for best paper).

41. M. E. Dieckmann, B. Eliasson, A. Stathopoulos and A. Ynnerman, "Kinetic simulation of electron injection by electrostatic waves", *Baltic Astronomy*, 13, (2004), 284–288. Appeared also in Proc. of Joint European and National Astronomical Meeting '03, Budapest, Hungary.

42. R. T. Mills, A. Stathopoulos and D. Nikolopoulos, "Adapting to memory pressure from within scientific applications on multiprogrammed COWs", International Parallel and Distributed Processing Symposium (IPDPS 2004), Santa Fe, USA. Acc. rate: 31.8%.

43. J.R. McCombs, R.T.Mills and A. Stathopoulos, "Dynamic load balancing of an iterative eigensolver on Grids of heterogeneous clusters", International Parallel and Distributed Processing Symposium (IPDPS 2003), Nice, France. Acc. rate: 29.2%.

44. J.R. McCombs and A. Stathopoulos, "Multigrain parallelism for eigenvalue computations on networks of clusters", Proceedings of the 11th IEEE Int. Symp. on High Performance Distributed Computing (HPDC 2002), Edinburgh, Scotland, July 23-26, (2002), 143-149. Acc. rate: 31%.

45. R. T. Mills, A. Stathopoulos, and E. Smirni, "Algorithmic modifications to the Jacobi-Davidson parallel eigensolver to dynamically balance external CPU and memory load", in Proceed. of the International Conference on Supercomputing (ICS'01), Sorrento, Italy, June 18-22, (2001), 454–463. Acc. rate: 33.8%.

46. H. Edelsbrunner, X.-Y. Li, G. Miller, A. Stathopoulos, D. Talmor, S.-H. Teng, A. Ungor and N. Walkington, "Smoothing cleans up slivers", ACM Symposium on Theory of Computing (STOC00), Portland, Oregon, May 21-23, (2000), 273–278. Acc. rate: 47%.

47. A. Stathopoulos and J. R. McCombs, "A Parallel, Block, Jacobi-Davidson Implementation for Solving Large Eigenproblems on Coarse Grain Environments", in Proceedings of the *1999 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'99)*, Vol. VI, pp. 2920–26, (CSREA Press, 1999). Acc. rate: 24%.

48. J. R. Chelikowsky, S. Ogut, X. Jing, K. Wu, A. Stathopoulos, and Y. Saad, "Atomic and Electronic Structure of Germanium clusters at Finite Temperature using Finite Difference Methods", *Mater. Res. Soc. Symp. Proc.,* Vol. 408, (1996) pp. 19–31.

49. A. Stathopoulos and A. Ynnerman, "Dynamic Load Balancing of Atomic Structure Programs on a PVM cluster", *HPCN Europe*, Lecture Notes in Computer Science, 919 (1995) 384–391.

50. A. Stathopoulos and C. F. Fischer, "Reducing Synchronization on the Parallel Davidson Method for the Large, Sparse, Eigenvalue Problem", in: Proceed. *Supercomputing '93 (SC'93),* pp. 172-180 (ACM Press, Portland 1993). Acc. rate: 24%.

PAPERS/CHAPTERS IN BOOKS

51. T. Whyte, A. Stathopoulos, E. Romero, K. Orginos, "Interpolation as a Means of Shift Selection for Multilevel Monte Carlo with Lattice Displacements", PoS (LATTICE 22) 255. https://doi.org/10.22323/1.430.0255
52. A. Gambhir, A. Stathopoulos, K. Orginos, B. Yoon, R. Gupta, S. Sytitsyn, "Algorithms for Disconnected Diagrams" in proceedings of "The 34th International Symposium on Lattice Field Theory", PoS (LATTICE 16) 265, https://doi.org/10.22323/1.256.0265.
53. A. Strelchenko and A. Stathopoulos, "Extending QUDA library with mixed precision incremental eigCG solver", in proceedings of "The 32nd International Symposium on Lattice Field Theory", 23-28 June, PoS (LATTICE 14) 031, FERMILAB-CONF-14-576-CD.
54. A. M. Abdel-Rehim, K. Orginos and A. Stathopoulos, "Extending the eigCG algorithm to non-symmetric linear systems with multiple right-hand sides", in proceedings of "The XXVII International Symposium on Lattice Field Theory - LAT2009", PoS (LATTICE 09) 036.
55. A. Stathopoulos, A. M. Abdel-Rehim and K. Orginos, "Deflation for Inversion with Multiple Right-Hand Sides in QCD", Journal of Physics: Conference Series 180 (2009) 012073, doi:10.1088/1742-6596/180/1/012073.
56. A. Stathopoulos, "Some insights on restarting symmetric eigenvalue methods with Ritz and harmonic Ritz vectors", in *Iterative Methods in Scientific Computation IV*, D. R. Kincaid & Anne C. Elster (eds.), pp. 297–311, Series in Computational and Applied Mathematics, IMACS, NJ (1999).
57. J.R. Chelikowsky, S. Öğüt, I. Vasiliev, A. Stathopoulos, and Y.Saad: "Predicting the Properties of Semiconductor Clusters," *Theory of Atomic and Molecular Clusters*, J. Jellinek, editor,(Springer-Verlag, 1999) p. 136–156.

OTHER PUBLICATIONS

1. A. Stathopoulos, E. Romero, L. Wu, "Extended functionality and interfaces of the PRIMME eigensolver", SIAM News, July 2017.

TECHNICAL REPORTS

1. A. Stathopoulos, "Locking issues for finding a large number of eigenvectors of Hermitian matrices", Tech Report: WM-CS-2005-09, July, 2005, Revised June 2006.

TUTORIALS

1. IEEE Big Data, Seattle, WA, 2018
2. SIAM CSE, Atlanta, GA 2017

POSTER/ABSTRACT/WORKSHOP PUBLICATIONS

1. Julianna Bor, Giuliano Casale, William Knottenbelt, Evgenia Smirni, Andreas Stathopoulos, "Fitting with matrix exponential mixtures generated by discrete probabilistic scaling", short paper in Workshop on MAthematical performance Modeling and Analysis (MAMA) 2023.
2. Heather Switzer and Andreas Stathopoulos, "Exploring Perfromance Benefits of Sketched Krylov Methods in PRIMME", Numerical Analysis and Scientific Computation with Applications, (NASCA) 2023.

3. Heather Switzer and Andreas Stathopoulos, "Exploring the Potential of Sketched Rayleigh-Ritz in Unrestarted Lanczos", SIAM Comput. Sci. Eng., Amterdam, 2023.
4. Heather Switzer, Lucca Skon, and Andreas Stathopoulos, "Thick-Restarted Lanczos with Sketched Rayleigh-Ritz for Computing Many Eigenpairs", SIAM Annual Meeting 2022.
5. Steven Goldenberg and Andreas Stathopoulos, "Low-Rank Stopping Criteria for the Singular Value Decomposition", Copper Mountain Conference on Iterative Methods 2022.
6. Andreas Stathopoulos and Heather Switzer, "Estimating the Trace of Off-Diagonals of Operators Defined on Lattices", SIAM Conference on Applied Linear Algebra 2021.
7. Steven Goldenberg and Andreas Stathopoulos, "Low-Rank Stopping Criteria for the Singular Value Decomposition", SIAM Conference on Applied Linear Algebra 2021.
8. E. Romero and A. Stathopoulos, "Low-precision orthogonalization in eigensolvers", Copper Mountain Conference on Iterative Methods, 2020.
9. S. Goldenberg and A. Stathopoulos, "Low-Rank Stopping Criteria for Block Parallel SVD", Copper Mountain Conference on Iterative Methods, 2020.
10. J. Myers and A. Stathopoulos, "HiSVD: A Hybrid Incremental SVD Method for Streaming Large, Sparse Matrices", Copper Mountain Conference on Iterative Methods, 2020.
11. E. Romero and A. Stathopoulos, "Multigrid deflation for Lattice QCD", ICIAM, Valencia 2019.
12. A. Stathopoulos, S. Goldenberg, E. Romero, Z. Liu, "Stopping criteria for computing low rank approximations with iterative methods", SIAM Comput. Sci. Eng., Spokane 2019.
13. A. Stathopoulos, J. Myers, L. Wu, E. Romero, Z. Liu, "Using the power of iterative methods for the SVD in machine learning", *Numerical Analysis and Scientific Computation with Applications,* 2018
14. E. Romero and A. Stathopoulos, "Combining Refined and Standard Rayleigh-Ritz for Interior Hermitian Eigenvalue Problems", *PMAA,* 2018.
15. A. Stathopoulos, J. Myers, L. Wu, E. Romero, F. Xu, Z. Liu, "Does machine learning need the power of iterative methods for the SVD?" *Copper Mountain Conference on Iterative methods,* 2018.
16. E. Romero and A. Stathopoulos, "Combining Refined and Standard Rayleigh-Ritz for Interior Hermitian Eigenvalue Problems", *Copper Mountain Conference on Iterative methods,* 2018.
17. A. Stathopoulos, E. Romero, A. S. Gambhir, and K. Orginos, "Variance Reduction Through Multigrid Deflation", *SIAM Conference on Computational Science and Engineering*, Atlanta, GA, 2017.
18. E. Romero and A. Stathopoulos, "Comparison of Techniques for Hermitian Interior Eigenvalue Problems: Refined, Harmonic and Polynomial Filters", *SIAM Conference on Computational Science and Engineering*, Atlanta, GA, 2017.
19. L. Wu, A. Stathopoulos, and E. Romero, "PRIMME_SVDS: A High-Performance Preconditioned SVD Solver for Accurate Large-Scale Computations", *SIAM Conference on Computational Science and Engineering*, Atlanta, GA, 2017.
20. J. Laeuchli and A. Stathopoulos, "Hierarchical Probing for General Graphs, a Method for Computing Diag(f(A))", *7th SIAM Workshop on Combinatorial Scientific Computing*, 2016.

21. E. Romero and A. Stathopoulos, "Latest Developments in PRIMME to Compute Many Interior Eigenpairs in Large Hermitian Matrices", *Parallel Matrix Algorithms and Applications*, PMAA 2016.

22. A. Stathopoulos and J. Laeuchli, "Hierarchical Probing for general sparse matrices, a method for computing diag(f(A))", Sparse Days, Toulouse, 2016.

23. L. Wu and A. Stathopoulos, "Preconditioned Thick-Restart Lanczos Method with Subspace Optimization for Symmetric Eigenvalue Problems", *Copper Mountain Conference on Iterative methods,* 2016.

24. E. Romero and A. Stathopoulos, "Spectrum Slicing in the Context of Computing Many Eigenvalues in Large Hermitian Matrices", *Copper Mountain Conference on Iterative methods,* 2016.

25. A. Stathopoulos, A. Gambhir, K. Orginos, "Deflation as variance reduction for computing the trace of the inverse", *Copper Mountain Conference on Iterative methods,* 2016.

26. L. Wu and A. Stathopoulos, "High-Performance Algorithms for Large-Scale Singular Value Problems and Big Data Applications", ACM/IEEE SC15 Doctoral Showcase, Austin, TX, USA, November 2015.

27. L. Wu, A. Stathopoulos, and E. Romero, "A High-Performance Preconditioned SVD Solver for Accurately Computing Large-Scale Singular Value Problems in PRIMME", ACM/IEEE SC15 ACM Student Research Competition, Austin, TX, USA, November 2015.

28. J. Laeuchli and A. Stathopoulos, "Inverse Probing for Estimating diag(f(A))", *12th SIAM Conference on Applied Linear Algebra,* Atlanta, 2015.

29. L. Wu and A. Stathopoulos, "Improving Thick-Restarting Lanczos Method by Subspace Optimization For Large Sparse Eigenvalue Problems", *12th SIAM Conference on Applied Linear Algebra,* Atlanta, 2015.

30. E. Romero and A. Stathopoulos, "Performance Comparison of FEAST and PRIMME in Computing Many Eigenvalues in Hermitian Problems", *12th SIAM Conference on Applied Linear Algebra,* Atlanta, 2015.

31. A. Stathopoulos and E. Romero, "Techniques for computing a large number of eigenpairs of sparse, Hermitian matrices", *12th SIAM Conference on Applied Linear Algebra,* Atlanta, 2015.

32. L. Wu and A. Stathopoulos, "An Implementation and Analysis of the Refined Projection method For (Jacobi-)Davidson Type Methods", *SIAM Conference on Computational Science and Engineering*, Salt Lake City, March 2015.

33. J. Laeuchli and A. Stathopoulos, "Computing an estimate of Trace(A^{-1}) using hierarchical probing and matrix sparsification", *Sixth SIAM Workshop on Combinatorial Scientific Computing*, 2014.

34. L. Wu and A. Stathopoulos, "Accurate computation of smallest singular values using the PRIMME eigensolver", *Parallel Matrix Algorithms and Applications*, PMAA 2014.

35. Michael Engelhardt, Jeremy Green, Stefan Krieg, Jesse Laeuchli, Stefan Meinel, John Negele, Kostas Orginos, Andrew Pochinsky, Andreas Stathopoulos and Sergey Syritsyn, "Calculation of disconnected contributions to nucleon form factors using hierarchical probing", *Lattice* 2014.

36. L. Wu and A. Stathopoulos, "Enhancing the PRIMME Eigensolver for Computing Accurately Singular Triplets of Large Matrices", *Copper Mountain Conference on Iterative methods,* 2014.

37. A. Stathopoulos, L. Wu, J. Laeuchli, V. Kalatzis, S. Gallopoulos, "Using ILU(0) to estimate the diagonal of the inverse of a matrix", ILAS, Rhode Island, 2013.

38. A. Stathopoulos and L. Wu, "A MATLAB interface for PRIMME for solving eigenvalue and singular value problems", *SIAM Conference on Computational Science and Engineering*, Boston 2013.

39. A. Stathopoulos, J. Laeuchli, and K. Orginos, "Approximating $Tr(A^{-1})$ with hierarchical probing on regular stencils", *Copper Mountain Conference on Iterative methods,* 2012.

40. A. Stathopoulos, K. Bekas, and A. Curioni, "Toward Architecture Aware Graph Partitioning", *Combinatorial Scientific Computing 2011*, Darmstadt, Germany, 2011.

41. A. Stathopoulos, K. Orginos, and A. A-Rehim, "Efficient computation of the trace of the inverse of a matrix", *Copper Mountain Conference on Iterative methods,* 2010.

42. A. Stathopoulos and K. Orginos, "Removing the critical slowdown in QCD through deflation with eigenvectors computed on the fly during CG", *Copper Mountain Conference on Iterative methods,* 2008.

43. A. Stathopoulos, "Robust and efficient solution of Hermitian eigenproblms using PRIMME", *Fourth SIAM Conference on Computational Science and Engineering*, San Francisco, 2007.

44. A. Stathopoulos and J. R. McCombs, "PRIMME: PReconditioned Iterative MultiMethod Eigensolver. A robust, efficient and flexible Hermitian eigenvalue software", *9th GAMM-SIAM conference on Applied Linear Algebra*, Dusseldorf, Germany, 2006.

45. A. Stathopoulos and J. R. McCombs, "PRIMME: PReconditioned Iterative MultiMethod Eigensolver. A robust, efficient and flexible Hermitian eigenvalue software", *Copper Mountain Conference on Iterative methods,* 2006.

46. C. Yue, A. Stathopoulos, and D. S. Nikolopoulos, "Memory adaptation of scientific applications via an application-level, remote memory library", *SIAM Conference on Parallel Processing for Scientific Computing*, 2006.

47. A. Stathopoulos, "Locking issues for finding a large number of eigenvalues of symmetric matrices", *7th IMACS Conference on Iterative Methods in Scientific Computing*, 2005.

48. A. Stathopoulos and Chao Yang, "Solving a certain type of eigenproblems with huge null spaces without matrix factorization", *Third SIAM Conference on Computational Science and Engineering*, Orlando, Florida, 2005.

49. A. Stathopoulos and J.R. McCombs, "Looking for a large number of eigenvalues of symmetric eigenproblems", *Third SIAM Conference on Computational Science and Engineering*, Orlando, Florida, 2005.

50. A. Stathopoulos and J.R. McCombs, "Iterative validation: a scheme for improving the reliability and performance of eigenvalue block iterative solvers", *Copper Mountain conference on Iterative methods,* 2004.

51. A. Stathopoulos, "How to make the (Jacobi-)Davidson method near optimal for symmetric eigenproblems", *6th IMACS Conference on Iterative Methods in Scientific Computing*, 2003.

52. A. Stathopoulos and J.R. McCombs, "Is there a symmetric eigenvalue method (software) of choice?" *8th SIAM Conference on Applied Linear Algebra,* 2003.

53. J.R. McCombs and A. Stathopoulos, "Parallel, multigrain linear system and eigenvalue solvers on MPPs and networks of clusters", *Second SIAM Conference on Computational Science and Engineering*, San Diego, California, 2003.

54. J.R. McCombs and A. Stathopoulos, "Parallel, multigrain solvers for hiding network latencies on MPP's and networks of clusters", *Workshop on Parallel Matrix Algorithms and Applications*, Neuchatel, Switzerland, 2002.

55. A. Stathopoulos, "A flexible, truncation scheme for FOM and FGMRES", *Copper Mountain Conference on Iterative methods,* 2002.

56. A. Stathopoulos and J. R. McCombs, "Multigrain hybrid parallel algorithms for eigenvalue calculations", *5th IMACS Conference on Iterative Methods in Scientific Computing*, 2001.

57. A. Stathopoulos and K. Wu, "A block orthogonalization procedure with constant synchronization requirements. Part II", *7th SIAM Conference on Applied Linear Algebra,* 2000.

58. A. Stathopoulos and K. Wu, "A block orthogonalization procedure with constant synchronization requirements. Part I.", *SIAM Annual Meeting,* 2000.

59. A. Stathopoulos and J. R. McCombs, "Parallel, multigrain eigensolvers with applications to materials science", *First SIAM Conference on Computational Science and Engineering*, 2000.

60. A. Stathopoulos, "A case for a biorthogonal Jacobi-Davidson method: restarting and correction equation", *Copper Mountain Conference on Iterative methods,* 2000.

61. A. Stathopoulos and J. R. McCombs, "A Parallel, Block, Jacobi-Davidson Method for Solving Large Eigenproblems in Material Sciences", poster in *9th SIAM Conference on Parallel Processing for Scientific Computing,* 1999.

62. A. Stathopoulos, S.-H. Teng, "Recovering mesh geometry from a stiffness matrix", *Copper Mountain Conference on Iterative methods,* 1998.

63. A. Stathopoulos, B. Rackner, Y. Saad, J. R. Chelikowsky, "Performance optimization of electronic structure codes on the Cray T3E", *4th NASA National Symposium on Large-Scale Analysis and Design on High-Performance Computers and Workstations,* 1997.

64. S.-H. Teng, A. Stathopoulos, "SEAM: Spectral Embedding for Algebraic Multilevel", poster in *6th SIAM conference on Applied Linear Algebra,* 1997.

65. Y. Saad, A. Stathopoulos, K. Wu, "Formulations of preconditioning techniques for eigenvalue problems", *SIAM's 45th Anniversary Meeting,* 1997.

66. Y. Saad and A. Stathopoulos, "Preconditioning and deflation techniques for non-normal eigenvalue problems", *SIAM's 45th Anniversary Meeting,* 1997.

67. E. Chow, A. Stathopoulos, Y. Saad, "Subspace preconditioning for the Schur complement", *International Symposium on Iterative Methods in Scientific Computation,* 1997.

68. A. Stathopoulos, Y. Saad, J. R. Chelikowsky, "Parallel solution of eigenvalue problems in electronic structure calculations," in Proceed. *8th SIAM Conference on Parallel Processing for Scientific Computing,* 1997.

69. A. Stathopoulos, Y. Saad, and J. R. Chelikowsky, "Porting electronic structure calculations to the IBM-SP2," in Proceed. *International Conference on Parallel Computing,* 1996, Minneapolis, MN.

70. K. Wu, Y. Saad, and A. Stathopoulos, "Preconditioned Krylov Subspace Methods for Eigenvalue Problems," in Proceed. *Copper Mountain Conference on Iterative methods,* 1996.

71. A. Stathopoulos, Y. Saad, and K. Wu, "Thick Restarting of the Davidson Method: an extension to the Implicitly Restarted Arnoldi", in Proceed. *Copper Mountain Conference on Iterative methods,* 1996.

72. A. Stathopoulos, Y. Saad, and C. F. Fischer, "A Schur Complement Method for Eigenvalue Problems," in: Proceed. *Copper Mountain Conference on Multigrid Methods,* 1995.

73. A. Stathopoulos, A. Ynnerman, and C. F. Fischer, "PVM Implementations of Atomic Structure Programs," in: Proceed. *PVM Users' Group 1994 Meeting,* Oak Ridge, TN, 1994.

74. A. Stathopoulos, Y. Saad, and C. F. Fischer, "Overlapping Domain Decomposition Preconditioners for the Generalized Davidson Method for the Eigenvalue Problem," in: Proceed. *Colorado Conference on Iterative Methods,* 1994.

75. A. Stathopoulos and C. F. Fischer, "A Hypercube Implementation of Davidson's Algorithm for the Large, Sparse, Symmetric Eigenvalue Problem", in Proceed. *Intel Supercomputer Users' Group, Annual Conference,* (1991) 343-53.

INVITED TALKS

Plenary talks

2021	Complexity of Matrix Computation, series of online discussions. `https://tube.switch.ch/channels/1ehZjBweJJ`
2018	Parallel Matrix and Algorithms (PMAA'18) Zurich, Switzerland
2016	Frontiers in Computing and Data Science Workshop, Michigan State University
2016	7th International Workshop on Numerical Analysis and Lattice QCD (QCDNA'16), U. Edinburgh
2008	5th Intern. Workshop on Numerical Analysis and Lattice QCD, Regensburg, Germany
2007	4th Intern. Workshop on Numerical Analysis and Lattice QCD (QCDNA'07), Yale U.
2005	Workshop on Computational Materials and Molecular Electronics, Institute for the Theory of Advanced Materials in Information Technology, Austin, TX

Talks at Universities/Labs

2023	University of Patras, Computer Engineering and Informatics Department
2022	Chalmers University, Department of Computer Science and Engineering
2020	Deakin University, School of Information Technology
2019	Purdue University, Department of Mathematics
2019	Cornell University, Scientific Computing Seminar
2019	Nanjing University, Department of Computer Science
2019	University of British Columbia, Scientific Computing Seminar
2018	Temple University, Computational Mathematics seminar
2017	University of Maryland, College Park, Computer Science and Mathematics seminar
2014	Georgia Institute of Technology, Computational Science and Engineering Department
2009	University of California at Davis, Department of Computer Science,
2007	Southern Methodist University, Department of Mathematics
2006	McGill University, Canada, Department of Mathematics

2005 University of Crete, Greece, Institute of Technology and Research
2005 University of Athens, Greece, Department of Mathematics
2004 Stanford University, Scientific Computing/Computational Mathematics (SCCM)
2004 NERSC, Lawrence Berkeley National Lab
2004 CSRI, Sandia National Laboratory
2003 Utrecht University, Department of Mathematics, The Netherlands
2003 University of Athens, Greece, Dept. of Informatics,
2003 University of Patras, Greece, Dept. of Mathematics,
2003 University of Patras, Greece, Computer Engineering & Informatics Department
2003 Virginia Tech, Dept. of Computer Science,
2002 Old Dominion University, Dept. of Electrical and Computer Engineering
2001 Old Dominion University, Dept. of Computer Science
2001 University of Ioannina, Greece
1999 Old Dominion University, Dept. of Computer Science
1999 Lawrence Livermore National Lab, CASC
1999 Lawrence Berkeley National Lab, NERSC
1999 University of Illinois at Urbana-Champaign, Dept of Computer Science
1998 NASA Langley Research Center, ICASE
1997 University of Patras, Greece, Computer Engineering & Informatics Department
1997 Argonne National Lab, Theory Institute
1996 The Boeing Company, Commercial Airplane Division
1996 Institute for Mathematics and its Applications, MN
1995 University of Tennessee at Knoxville, Computer Science Department

Minisymposia and other invited talks

2022 SIAM Conference on Parallel Processing for Scientific Computing
2021 SIAM Applied Linear Algebra 2021, Virtual
2018 Parallel Matrix and Algorithms (PMAA'18), Zurich, Switzerland
2017 Householder Symposium XX, invited research talk, Blacksburg, USA
2015 SIAM Conf. Comput. Sci. & Eng.,
2013 ERCIM 2013
2012 PMAA 2012
2009 SIAM Conf. Appl. Lin. Alg.,
2009 SIAM Conf. Comput. Sci. & Eng.
2008 Householder Symposium XVII, invited research talk, Zeuthen, Germany
2007 Intern. Congress Industr. Appl. Math.,
2006 Joint GAMM-SIAM Conf. Appl. Lin. Alg
2005 Householder Symposium XVI, invited research talk, Champion, PA
2003 European Research Conference on Advanced Environments and Tools
2001 10th SIAM Conf. Paral. Proc. for Sci. Comp.
1999 5th US National Congress on Computational Mechanics
1998 4th IMACS Intern. Symp. on Iterative Methods in Scientific Computation

STUDENTS GRADUATED

Ph.D.

2023 Yu Chen, (co-advisor) "Domain-specific Optimization for Machine Learning System" Citadel, NY
2022 Steven Goldenberg, "Flexible and Robust Iterative Methods for the

Partial Singular Value Decomposition",
Postdoc at Jeffeson Lab (DOE)

2017 Arjun Gambhir, Physics Ph.D., (co-advisor)
Computational physicist at Lawrence Livermore National Lab (DOE)

2016 Lingfei Wu, "Algorithms for Large Scale Problems in Eigenvalue and SVD Computations and in Big Data Applications"
Engineering Managers, Pinterest

2016 Jesse Laeuchli, "Methods for Estimating the Diagonal of Matrix Functions"
Associate Prof. in Computer Science, Deakin University, Melbourne, Australia

2007 James R. McCombs, "Toward a robust and efficient iterative eigensolver",
Awarded the "W&M Distinguished Dissertation Award in the Natural and Computational Sciences", Research scientist at Indiana U. Supercomputing Center

2004 Richard T. Mills, "Dynamic adaptation to CPU and memory load in scientific applications"
Computational scientist at Argonne National Lab (DOE)

M.S.

2020 Heather Switzer (M.S.) "Probing for Traces of General Displacements on the Matrix Inverse of Toroidal Lattices"

2018 Fangli Xu, (M.S.) "Comparison of deterministic and randomized methods for SVD"

2017 Steven Goldenberg (M.S.) "A generalized Davidson method for computing the smallest singular triplets

2016 Chuong Ngo (M.S.) "Estimating the Trace of Matrices using the Dynamic Programming for Restricted K-Means Partitioning Algorithm"

2013 Reed G. Ruddy, (M.S.) "A Study of MPI and Hadoop"

2013 J. Laeuchli, (M.S.) "Hierarchical Probing for Estimating the Trace of the Matrix Inverse on Toroidal Lattices"

2008 John M. Trindle, (M.S.) "Efficient Sparse Matrix-Vector Multiplication in the NVIDA CUDA GPU Environment"

2007 A. Schwartz, (M.S.) "Optimizing Sparse Matrix-Multivector Multiplications for Multi-Core Architectures"

2002 E. Wiebel, (M.S.) "Collective operations in the UPC programming model"

2001 R. T. Mills, (M.S.) "Application-level dynamic balancing of CPU and memory load on a coarse-grain parallel iterative eigensolver"

2000 M. Staron, (M.S.) "An optimized, portable OpenMP Implementation of BLAS"

1999 J. R. McCombs, (M.S.) "A parallel, block, Jacobi-Davidson method for computing the extreme eigenpairs of large, sparse, symmetric matrices"

POSTDOCS

2023– Konstantinos Liakos

2020–2022 Travis Whyte (moving to postdoc at Cambridge University, UK, Oct 2022)

2015–2020 Eloy A. Romero (HPC & Computational scientist, Jefferson Lab, DOE)

2008–2010 Abdou Abdel-Rehim (Medical Physicist, CentraCare)

CURRENT ADVISEES

2020– Lucca Skon, Ph.D.

2019– Heather Switzer, Computer Science, Ph.D.

2017– Jeremy Myers, Computer Science, Ph.D.

UNDERGRADUATE RESEARCH

2021 Ben Harlow, NSF funded summer research
2019 Matt Freeman
2018 Ankush Hommerich-Dutt, NSF funded summer research student from Caltech
2015-16 Kelvin Abrokwa-Johnson

COURSES TAUGHT

Graduate

CS 749, Numerical Algorithms. Spring 2000, 03, 06, Fall 2008, 12
CS 780, Topics in Eigenvalue methods. Spring 2001
CS 674 (CS 649), Parallel Computing. Fall 2002, 04, 06, 07 (Fall 1998, 00)
CS 654, Advanced Computer Architecture. Spr 02, 07, 08, 10, 14 Fall 12, 16
CS 653, Analysis of Algorithms. Fall '97, '99, '05, '18, '20, Spr '17
CS 649 (CS 780), Computational Methods. Spr 15, 16, 22, Fall 2009, 11, 13, 17
CS 690/790, Individual studies. Fall 1997, 1999, Spring 2000

Undergraduate

CSUMS, Fall/Spring 2007–8: An undergraduate, NSF funded, interdisciplinary program between Mathematics and Computer Science with weekly seminars, lectures, and research projects.
CS 420, Modeling, Simulation and Analysis Research Seminar. Spring 2002
An undergraduate, NSF funded, interdisciplinary course, with participants from the departments of Mathematics, Physics, Computer Science, and a Physics professor from Hampton University.
CS 424, Computer Architecture. Spring 2003, Fall 2004
CS 303, Algorithms. Spring 1999, 2009
CS 243, Discrete Structures. Spring 2011, 13, 18, 19(2), 21, 22, 23, Fall 14, 15, 22
CS 141, Introduction to Computer Science. Spring 1998, 2001, Fall 1998-99, 2001

PROFESSIONAL ACTIVITIES

Societies

Member of SIAM and the following SIAM activity groups:
Computational Science and Engineering, Linear Algebra, Supercomputing
Member of IEEE and IEEE Computer Society

Reviewer

Reviewed suggested curriculum for the Mathematical and Statistical Foundations knowledge area for the joint task force of the ACM, IEEE Computer Society and the AAAI.
Yearly participation in various NSF proposal review panels, DOE review panels
Adhoc NSF and DOE reviews, European Science Foundation, Israel Science Foundation
Canada Foundation for Innovation, Arizona Science Foundation
Frequent reviewer for SIAM Journals: SISC, SIMAX, SIMODS
ACM Trans. on Mathematical Software, ETNA, Mathematics of Computation

Appl. Numeric. Math., Numer. Lin. Alg. with Appl., Lin. Alg. and its Appl.
Computer Physics Communications, J. Computational and Graphical Statistics
J. of Comput. Statistics and Data Analysis, J. of Comput. Physics, Parallel Computing
Many HPC conferences including ICPP, ICS, IPPS, IPDPS, Irregular, SC'XY

W&M SERVICE

Departmental committees and activities

2022–23	Chair of Faculty Recruiting
2022–23	Chair of subcommittee for merit evaluation procedures
2007–22	Chair of Personnel Committee
2021–22	Chair of Computing Systems committee
2021–22	Faculty Recruiting (CS and Data Sci), Graduate Curriculum
2018–19	Chair of Faculty Recruiting committee
2016–19	Chair of Computing Systems committee
2018–19	Outreach Colloquium talks
2017–18	CS liaison for meetings with Jefferson Lab
2012–18	Graduate Curriculum Committee
2013–17	Chair of Faculty Recruiting committee
2008–10	Chair of Graduate Curriculum Committee
2006–10	Graduate Admissions Committee
2005–06	Graduate Curriculum Committee
2004–09	Personnel Committee, Faculty Recruiting Committee
2005–06	Chair of Faculty Recruiting committee, Personnel Committee
2005–06	Department's Computing Environment Committee
2005	Drafted the Department's accreditation document for the B.S. program
2004–05	Chair, Graduate Curriculum Committee
2002–03	Chair, Computing Systems Committee
2002–03	Graduate Curriculum Committee
2002–03	Personnel Committee
1999–03	Graduate Admissions Committee
1999–02	Faculty Recruiting Committee
1997–02	Curriculum Committee
1997–99	Developed a graduate numerical algorithms course on iterative methods, and co-developed a Parallel Computing graduate course

Campus-wide activities

2021-3	Co-Chair, Committee on Faculty Awards, Professorships, and Prizes
2020-1	Committee on Faculty Awards, Professorships, and Prizes
2018-9	Arts & Sciences Undergraduate Research Committee
2018-9	W&M response coordinator for Jefferson Lab Femtography Center's CFP
2018	Review committee chair for Thomas Jefferson Student Prize in Natural Sciences
2018	Distinguished Thesis & Dissertation Awards committee
2008-19	Member of review committee for Goldwater Fellowship nominations
2015-16	Chair, Faculty Research Committee Handled the rewriting of the Summer Research Grant document
2016	Raft Debate of Champions, devil's advocate, Washington, DC
2013-15	CS Liaison for the College-wide transition to online student evaluations
2013-15	Faculty Research Committee

2014	Raft Debate winner as devil's advocate, W&M
2013	Exploratory committee for W&M-Jefferson Lab collaboration
2009-10	Member of the College's STEM Education Initiative
2008-09	Internal review committee member for W&M HPC/Computational Sciences
2008	Member of Graduate Arts and Sciences Awards Committee
2007	Member of Ad Hoc High Performance Computing Advisory Committee
2004–08	Academic adviser for Orthodox Christian Fellowship student association
1997–09	Member of the Computational Science Cluster (CSC) Actively participated in campus-wide CSC and HPC advisory meetings and seminars. Pursued collaboration opportunities with faculty in Physics and VIMS.
1999	One of seven College-wide PIs in the NSF MRI grant that started the SciClone project, a cluster of workstations serving the high performance computing needs of the College.
1997–98	Computational Science Cluster Curriculum Committee One of three CS faculty that in coordination with Applied Science and Physics, developed the requirements for M.S. and Ph.D. degrees with specialization in Computational Sciences, and designed four new CS courses for CSC.

Student committees

2023	G. Bakbouk (Ph.D. proposal), S. Chen (Physics Ph.D.), M. Sun (Ph.D.), J. Tan (Ph.D.)
2022	Zhen Peng (Ph.D. proposal)
2021	Qiong Wu (Ph.D.), V. Cooper (Ph.D.)
2020	Mohamed A. Ibrahim (Ph.D. predefense), Zhaoliang Duan (Ph.D. pre/defense), Cody Watson (Ph.D. pre/defense), Christopher Hendriks (Physics Ph.D. defense)
2019	J. Alter (M.S), G. Prunell (M.S.), C. Watson (Ph.D. proposal, defense), V. Cooper (Ph.D.) S. Wen (Ph.D.), R. Probir (Ph.D.), Mohamed Ibrahim (Ph.D. proposal).
2018	J. Wilkes (Math Honors), E. Amparo (Phys Honors), V. Cooper (Ph.D. proposal), R. Givens (Ph.D.), S. Yi (Ph.D. proposal, defense), S. Wen (Ph.D. predefense)
2017	Hao Shi (Ph.D., Physics), M. White (Ph.D.), K. Wallace (Ph.D.), C. Vendom (Ph.D.)
2016	Z. Duan (Ph.D.), V. Cooper (Ph.D.), M. Linares (Ph.D.) Z. Qin (Ph.D.), M. White (Ph.D. proposal), Z. Duan (Ph.D. proposal), C. Vendome (Ph.D. proposal)
2015	Bo Dong (Ph.D.), Yudistira Virgus (Ph.D., Physics)
2014	K. Wallace (M.S.)
2013	Zhengrui Qin (Ph.D.), A. Kowalski (M.S.)
2009	Michael Liarakos (CS Honors), Andrew D. Favaloro (Physics Honors)
2008	Adam Hitchcock (M.S.), S.R. Silkworth (Physics Honors)
2007	Sean Krems (M.S.)
2006	Glenn Hines (Ph.D.)
2005	R. J. Walter (M.S.), W. Purwanto (Ph.D. in Physics)
2004	S. Jiang, K. Barker (M.S.), S. Mains (Ph.D.)
2003	Z. Zhu (Ph.D.)
2002	Z. Zhang, R. Jones (Ph.D.)
2001	T. Litant (Ph.D.)
2000	A. Miner (Ph.D.)
2000	M. Weber, A. Mangalam and C. Tucker (M.S.)
1999	T. Rinoski and J. Moriarti (M.S.), B. Lawson (Ph.D. proposal)
1999	T.J. Walls (Honors, Applied Sciences)
1998	V. Sandor (Ph.D.), and K. Roe (M.S.)